

Harris School of Public Policy Studies
Statistics for Public Policy I
PPA 310—Fall 2014
(As of 9/16/14)

Instructor: Ben Keys (benkeys@uchicago.edu)

Time and Location: T-Th 10:30 – 11:50 or 1:30 – 2:50, Harris Lecture Hall

Instructor Office Hours: Wednesdays 3:00 – 4:30, and by appointment, Harris 161 (or 153c)

Teaching Assistants:

Jonathan Giuffrida (jgiuffrida@uchicago.edu)

Emily Haddad (ehaddad@chicagobooth.edu)

Paul Li (ymli@uchicago.edu)

Carolina Mendez (carolinamendez@uchicago.edu)

Andres Perez (acperez@uchicago.edu)

Tong Wang (tongw@uchicago.edu)

Weekly TA Review Sessions and Office Hours (OH):

Jonathan Giuffrida – Mondays, Review 4:30-5:30, OH 5:30-6:30, Harris Room 289B

Andres Perez – Tuesdays, Review 8:30am – 9:30, OH 9:30am-10:30, Harris Room 289A

Carolina Mendez – Tuesdays, Review 4:30 – 5:30, OH 5:30- 6:30, Harris Room 289A

Emily Haddad – Wednesdays, Review 1:30-2:30, OH 2:30-3:30, Harris Room 289B

Paul Li – Wednesdays, Review 4:30 – 5:30, OH 5:30 – 6:30, Harris Room 289B

Tong Wang – Thursdays, Review 4:30 – 5:30, OH 5:30- 6:30, Harris Lecture Hall

Course Description: This is the first quarter of the statistics sequence at the Harris School. This course aims to provide students with a basic understanding of statistical analysis for policy research. This course makes no assumptions about prior knowledge, apart from basic mathematics skills. Examples will draw on current events and policy debates when possible.

Lectures: This course is divided into two sections. The material covered will be identical in each section. Please attend the section in which you have enrolled.

Required Text: Moore, D. S., McCabe, G. P., & Craig, B. (2014). Introduction to the Practice of Statistics, 8th Edition. New York: W.H. Freeman & Co. This book is available at the University bookstore.

Recommended (FREE) Text:

Diez, D., Barr, C., & Cetinkaya, M. (2012) Open Intro Statistics. <http://www.openintro.org/>

Grading: Grades will be based on a midterm exam (25%), a final exam (40%), two projects (20%), and a series of problem sets (15%). **No late assignments will be accepted.** The final exam will be comprehensive.

Group work: You may work on the problem sets in groups of four or fewer members, but everyone must turn in an individual assignment. You may work together on the analysis of the projects, but each student must turn in his/her own write up in his/her own words. You may turn in assignments early, but **no late assignments** will be accepted.

Assignments: All assignments must be submitted by **5PM** on their due date. Assignments should be placed in the box on the door of Harris Room 161.

Re-grade Policy: If you think that there is an error in the grading of your work, you must submit a typed written statement of the details of the problem in question to a TA attached to the assignment in question. The TAs will review both your reasoning and the problem and respond within one week. If you are still not satisfied, you may turn in your written reasoning and assignment to the instructor. However, the instructor reserves the right to re-grade the assignment in its entirety.

Computer software: This course will require you to complete assignments using the statistical software STATA. This program is available on the computers in the Harris School Computer Lab and on the student servers. For some of your assignments, you will be required show your computer code.

Course Q&A Forum: A course discussion board will be available through CHALK. This board should be used to pose questions to the TAs and instructor. We guarantee a response to all board-posted questions within 24 hours. Questions not posted to the board and emailed to the TAs or the instructor will not necessarily be answered as quickly.

Tentative Class Schedule:

| Class | Date | Topics | MMC Readings |
|-------|-------|---|---------------------|
| | | I. Describing Data | |
| 1 | 9/30 | Center Spread, Normal Distribution | 1.1-1.4 |
| 2 | 10/2 | Describing Data: Correlation and Two-Way Tables | 2.1 - 2.3, 2.6- 2.7 |
| | | II. Surveys and Sampling | |
| 3 | 10/7 | Sampling and Survey Design | 3.1-3.5 |
| | | III. Probability | |
| 4 | 10/9 | Basic Probability I | 4.1-4.2 |
| | 10/10 | Problem Set #1 Due | |
| 5 | 10/14 | Basic Probability II | 4.1-4.2 |
| 6 | 10/16 | Conditional Probability and Bayes's Rule | 4.5 |
| 7 | 10/21 | Random Variables and the Law of Large Numbers | 4.3-4.4 |
| | | IV. Statistical Inference | |
| 8 | 10/23 | Sampling Distributions for Counts & Proportions | 5.2 |
| | 10/24 | Problem Set #2 Due | |
| 9 | 10/28 | Midterm Exam | |
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| 10 | 10/30 | Central Limit Theorem | 5.1 |
| 11 | 11/4 | Confidence Intervals | 6.1 |
| 12 | 11/6 | Tests of Significance and Power | 6.2-6.4 |
| | 11/7 | Project #1 Due | |
| 13 | 11/11 | Inference for Mean of a Population | 7.1 |
| 14 | 11/13 | Comparing Two Means | 7.2 |
| | 11/14 | Problem Set #3 Due | |
| 15 | 11/18 | Inference for Proportions | 8.1-8.2 |
| 16 | 11/20 | Two-way Tables and Chi-Square Tests | 9.1-9.2 |
| | | V. Intro to Regression Analysis | |
| 17 | 11/25 | Regression | 2.4 – 2.5, 10.1 |
| | 11/25 | Project #2 Due | |
| | 11/27 | <i>No Class - Thanksgiving</i> | |
| 18 | 12/2 | Regression | 10.2 |
| | 12/3 | Problem Set #4 Due | |
| 19 | 12/4 | Regression | 11.1-11.2 |
| | 12/8 | Final Exam | |